**Venn Diagram Problems**

1. The Swiss embassy in Ottawa has 65 employees. Of these workers, 47 speak

German, 35 speak Italian, and 20 speak both German & Italian. How many embassy

employees speak neither German nor Italian? Illustrate the situation with a Venn

Diagram.

2. A survey of television viewers at “A Child’s Place” preschool produces the following

data:

60% watch Sesame Street

50% watch Captain Kangaroo

50% watch Polka Dot Door

30% watch Sesame Street and Captain Kangaroo

20% watch Captain Kangaroo and Polka Dot Door

30% watch Sesame Street and Polka Dot Door

10% watch all three shows

(a) What percentage view at least one of these programs?

(b) What percentage view none of the shows?

(c) What percentage view Sesame Street and Captain Kangaroo but not Polka Dot Door?

(d) What percentage view exactly two of these programs?

3. Ace Electronics, a growing firm, has applied to Doe Insurance Company for a group

life insurance policy. The insurance company requests the following data concerning

the 1605 employees of Ace: the number who are married, the number who are over

40 years of age, and the number who have passed the required physical examination.

The personnel manage from Ace provides the following data:

715 are married

894 are over 40

911 have passed the physical

352 are married and over 40

365 are married and have passed the physical

320 are over 40 and have passed the physical

209 have passed the physical, are married, and are over 40

Show that this information is in error. (Illustrate the situation with a Venn Diagram

and record all your calculations to prove there is an error)

4. Of 1400 students at Tomlintown High, 800 attended the first school dance of the

year. The music was not good so only 500 attended the next dance. If 300 attended

both dances, how many did not go to either event?

5. The 29 students of Mr. Vicker’s class use a variety of forms of transportation to get to

school. Twenty of them sometimes arrive at school in a car; 12 bicycle to school at

least occasionally; 16 take the bus some days. If four students use all three of these

options, six either bicycle or take the bus, ten come by car or bike, and nine arrive by

car when they do not come on the bus, how many always use some other type of

transportation?

6. A penny, a nickel, and a dime were tossed together 50 times. The penny came up

heads 30 times, the nickel 26, and the dime 24; the penny and the nickel came up

heads together 14, the penny and the dime 10, and the nickel and the dime 11. Show

that all three came up heads together, at most, five times.

7. In a recent election poll of 193 people, the following information was collected:

140 of those polled were professionals; 84 were under 30 years of age; 133

voted Conservative in the last election; 56 were professionals under 30; 41 of

those under 30 voted Conservative; 111 professionals voted Conservative; 36

of the professionals under 30 voted Conservative.

Of those polled, how many non-professionals aged 30 or over did not vote

Conservative?

8. In Mrs. Paul’s Music Class, students learn to play only the clarinet, guitar,

saxophone, and trombone. So far this term, no student can play all four; the one who

plays three cannot play sax but all those who do play sax also play clarinet. If there

are 36 students in the class and the following chart shows the skills of the students,

how many students still cannot play any instrument?

Saxophone 2 students

Clarinet 15

Guitar 16

Trombone 18

Clarinet and Guitar 4

Clarinet and Trombone 5

Guitar and Trombone 7

Answers:

1. 3

2. (a) 90 (b) 10 (c) 20 (d) 50

3. ---

4. 400

5. 2

6. ---

7. 8

8. 2

Source: <http://www.conestogac.on.ca/~btozer/Venn%20Diagram%20Problems.pdf>